SCOPING MEETING

Engineering Evaluation/Cost Analysis and Non-time Critical Removal Action Memorandum

Fairchild Air Force Base and City of Airway Heights, WA

Contract No. W912DW18D1014, TO W912DW18F2100

Air Force Civil Engineer Center

U.S. Army Corps of Engineers, Seattle District

30 January 2019

Prepared by Brice–AECOM Joint Venture and Newfields

AGENDA

- **Project Objective**
- **Site Description**
- **Work Planning**
  - Establish data quality objectives
  - Review of available information/data
  - Identify data gaps/next steps to support evaluation of alternatives
  - Hydrogeologic study objective and approach
- **Hydrogeologic Study Preliminary Results**
- **Next Steps**
- **Additional Discussion/Action Items**

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PROJECT OBJECTIVE

- ***Complete a NTCRA Memorandum for PFOS and PFOA in drinking water at three Airway Heights municipal wells, on behalf of the FAFB - Decision document selecting removal action alternative***
- **To support completion of the action memorandum, the following activities are being completed:**
  - Work Planning
  - Hydrogeologic Study (fill data gaps to complete an EE/CA)
  - EE/CA to develop and evaluate removal action alternatives
    - RAO: prevent the imminent and substantial danger to human health or the environment posed by PFOS and PFOA-contaminated groundwater used as drinking water
    - In the absence of an ARAR (promulgated cleanup levels), EPA's lifetime health advisories (HAs) of 70 ppt or 0.07 µg/L for PFOS and PFOA will be used to establish protective levels in drinking water
  - Public outreach, notices, and meetings to support selection of the preferred removal action alternative

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SITE DESCRIPTION

- **FAFB**
  - Spokane County, WA
  - Site inspections in 2017 detected PFOS/PFOA in groundwater above the HA of 70 ppt
    - ***Sum of PFOS and PFOA from 17,690 to 167,000 ppt*** [a]
    - PFBS was not detected in groundwater at concentrations above the RSL
- **Airway Heights and surrounding area**
  - Adjacent to FAFB to the southwest and Spokane International Airport to the southeast, approximately six miles west of Spokane
  - PFOS/PFOA detected in three (of eight) municipal supply wells in May 2017
    - ***1,400 ppt in Wells 1/4 field location (sum) and 1,520 ppt in Well 9 (sum)*** [b]
  - Immediate temporary measures: bottled drinking water and increased use of Spokane water, after flushing the system with clean Spokane water
  - TCRA for treatment systems for private residential wells near FAFB initiated in 2017 (GAC)
  - TCRA for temporary treatment system at Well 9 initiated in 2018 (GAC)

Sources:
a USAF Site Inspection Report, 2018
b Airway Heights Water Quality Report, 2017 Consumer Confidence Report, 2017

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SITE DESCRIPTION – WATER SUPPLY

- **Airway Heights Water Supply**
  - Total of 8 supply wells – not currently in use
  - Intertie agreement with the City of Spokane for supplemental water needs
  - **Wells 1 and 4 are located together and classified as a well field**
    - Produces 350 gpm, draws water from a paleochannel
    - City's second largest primary source of groundwater
    - Not currently being used
  - **Well 9 ("Recovery Well")**
    - Produces 1,000 gpm, draws water from a paleochannel
    - Not currently being used
    - Temporary GAC treatment system is having some air entrapment issues – Intended to be temporary water supply during the summer months when demand increases

Source: Airway Heights Comprehensive Water System Plan (February 2017)

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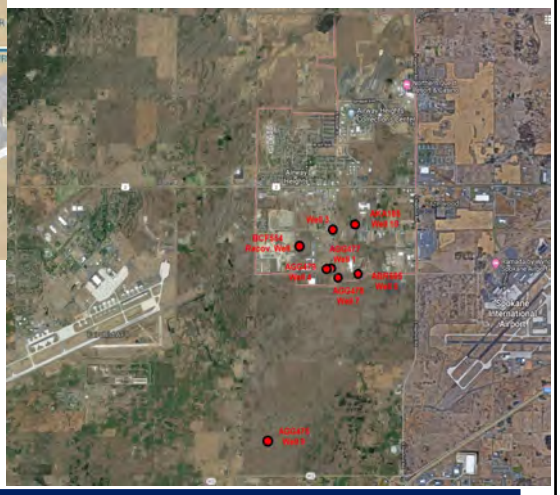
SITE DESCRIPTION – SUPPLY WELLS



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SITE DESCRIPTION – WELL DETAILS

Well[1]	Alternative Name	Source Number[2]	Well Tag	Status	Well Details: Inst. Date	Ttl. Dpth. (ft)	Casing Dpth. (ft)	Screen Lgth. (ft)	SWL (ft)	Capacity (gpm): Design	Capacity (gpm): Sustained	Hydrogeologic Unit
1	S08 wellfield	S01	AGG477	Off-WQ	<1961	192	175	30	113	448	160	Paleochannel
4		S04	AGG479	Off-WQ	1967	200	181	20	113		190	Paleochannel
2	--------	S02	AGG476	Replaced by Well 8	1983	170	170	NA	NM	NA	NA	NA
3	--------	S03	-----	Non-Potable Use	1943?	130	80	NA	34	NA	60	NA
5	--------	S05	ABR585	Off-Dry	1970	204	63	NA	57	NA	65	Basalt
6	--------	-----	-----	Decommisioned	1981	466	224	NA	264	NA	NA	Basalt
7	--------	S07	AGG478	Emerg. Backup	1994	440	380	60 (perf)	340	120	85	Basalt
8	--------	S10	AKA185	Off-WQ	2006	830	478	NA	310	300	45	Basalt
9	Recovery Well	S11	BCF554	Off-WQ	2012	255	200	50	130.5	3,000	1,000	Paleochannel
10	Parkwest	S09	AGG475	Emerg. Backup	1979	301	152	NA	50	1,400	NA	Basalt
Spokane Intertie	--------	S06	-----	Active	-----	-----	-----	-----	-----	-----	1,500	-----

1 Well numbers have been revised over time to match the Dept. of Health Source Numbers

2 Washington State Dept. of Health

Source: Airway Heights Comprehensive Water System Plan (February 2017)

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SITE DESCRIPTION – WELL CAPACITIES

CITY WATER SUPPLY SOURCE CAPACITIES

WELL	DESIGN PUMP CAPACITY (GPM)	DESIGN PUMP CAPACITY 1,000 GPD*	"RELIABLE" SUSTAINED YIELD (GPM)	ACTUAL AVAILABLE CAPACITY 1,000 GPD*
No. 1 and 4	448	645	**350**	645
No. 8	150	216	45	65
Park West	1,500 Reduced to 0	2,160 Emergency Only	0	0
COS Intertie	1,500	2,160	1,500	2,160
Recovery Well (9)	2,800	4,032 Short periods only	**1,000**	1,440
Total Daily System Capacity:	*6,398*	*9,213*	*2,895*	*4,310*

* Assumes wells pump 24 hrs per day, during short peak demand.
Source: Airway Heights Comprehensive Water System Plan (February 2017)

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SITE DESCRIPTION – GROWTH PROJECTIONS

PROJECTED WATER PRODUCTION REQUIREMENTS

Year	City Pop	Year End ERUs	Annual Production (X1000 Gal)	Annual Per ERU (Gal)	Average Day Demand (x1000 Gal)	Max Month Demand (x1000 Gal)	Max Day (X1000 Gal)	Existing Daily Pump Capacity (X1000 Gal)	Remaining Daily Capacity (1000 Gal)
2016*	8416	*4,308*	*569,476*	*132,192*	*1,556*	*87,055*	*3,896*	4,310	414
2017*	8447	*4,449*	*588,126*	*132,192*	*1,611*	*89,907*	*4,024*	4,310	286
2018*	8478	*4,590*	*606,792*	*132,192*	*1,662*	*92,760*	*4,151*	4,310	159
2019*	8510	*4,648*	*614,368*	*132,192*	*1,683*	*93,918*	*4,203*	4,310	107
2020*	8541	*4,705*	*621,959*	*132,192*	*1,699*	*95,079*	*4,255*	4,310	55
2021*	8634	*4,787*	*632,781*	*132,192*	*1,734*	*96,733*	*4,329*	4,310	-19
2022*	8727	*5,094*	*673,399*	*132,192*	*1,845*	*102,942*	*4,607*	4,310	-297
2023*	8821	*5,402*	*714,080*	*132,192*	*1,956*	*109,161*	*4,885*	4,310	-575
2024*	8916	*5,610*	*741,605*	*132,192*	*2,026*	*113,369*	*5,074*	4,310	-764
2025*	9013	*5,819*	*769,193*	*132,192*	*2,107*	*117,586*	*5,262*	4,310	-952
2026*	9110	*6,028*	*796,846*	*132,192*	*2,183*	*121,813*	*5,452*	4,310	-1,142
2027*	9208	*6,238*	*824,564*	*132,192*	*2,259*	*126,051*	*5,641*	4,310	-1,331
2028*	9308	*6,448*	*852,348*	*132,192*	*2,329*	*130,298*	*5,831*	4,310	-1,521
2029*	9408	*6,658*	*880,199*	*132,192*	*2,412*	*134,555*	*6,022*	4,310	-1,712
2030*	9510	*6,870*	*908,116*	*132,192*	*2,488*	*138,823*	*6,213*	4,310	-1,903
2031*	9613	*7,081*	*936,102*	*132,192*	*2,565*	*143,101*	*6,404*	4,310	-2,094
2032*	9717	*7,294*	*964,157*	*132,192*	*2,634*	*147,390*	*6,596*	4,310	-2,286
2033*	9822	*7,506*	*992,281*	*132,192*	*2,719*	*151,689*	*6,789*	4,310	-2,479
2034*	9928	*7,720*	*1,020,475*	*132,192*	*2,796*	*155,999*	*6,982*	4,310	-2,672
2035*	10,035	*7,926*	*1,047,692*	*132,192*	*2,870*	*160,160*	*7,168*	4,310	-2,858

* Projected
Italics – Estimated
Max. Day Demand based upon 2009-2014 water production records, (904 gpd/ERU)
Existing Capacity Based on; Well #1-177gpm, Well #8-45gpm, Well #4-271gpm, COS Intertie-1,500gpm, & Well 9 (Recovery)–1000gpm
Total Existing Capacity = 2,993 gpm
Available Capacity is 2,993 gpm x 60min/hr x 24hr/day which equals 4,309,920 gallons per day
ERU = Equivalent Residential Unit. Average amount of water used by a single residential dwelling unit

Source: Airway Heights Water Quality Report, 2017 Consumer Confidence Report, 2017

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SITE DESCRIPTION – GROWTH PROJECTIONS

PROJECTED WATER PRODUCTION WITH RECLAIMED WATER

Year	Max Day (X1000 Gal)	Existing Daily Pump Capacity (X1000 Gal)	Projected Treatment Plant Flows (Ave Day)	Estimated Reclaimed Daily Water Available (1,000 Gal)	Total Daily Capacity with Reclaimed Water	Remaining Daily Capacity With Reclaimed Water (1000 Gal)
2016*	3,896	4,310	618,469	618	4,928	1,032
2017*	4,024	4,310	762,262	762	5,072	1,049
2018*	4,151	4,310	810,742	811	5,121	969
2019*	4,203	4,310	859,990	860	5,170	967
2020*	4,255	4,310	979,384	979	5,289	1,034
2021*	4,329	4,310	1,030,406	1,030	5,340	1,011
2022*	4,607	4,310	1,091,238	1,091	5,401	794
2023*	4,885	4,310	1,144,112	1,144	5,454	569
2024*	5,074	4,310	1,256,969	1,257	5,567	493
2025*	5,262	4,310	1,308,734	1,309	5,619	356
2026*	5,452	4,310	1,364,648	1,365	5,675	223
2027*	5,641	4,310	1,421,651	1,422	5,732	90
2028*	5,831	4,310	1,479,682	1,480	5,790	-42
2029*	6,022	4,310	1,538,981	1,539	5,849	-173
2030*	6,213	4,310	1,599,393	1,599	5,909	-303
2031*	6,404	4,310	1,661,161	1,661	5,971	-433
2032*	6,596	4,310	1,724,230	1,724	6,034	-562
2033*	6,789	4,310	1,788,549	1,789	6,099	-690
2034*	6,982	4,310	1,828,267	1,828	6,138	-843
2035*	7,168	4,310	1,869,434	1,869	6,179	-988

Treatment plant flows based on projected City flows plus Kalispel & Spokane Tribe estimated flows.

Source: Airway Heights Water Quality Report, 2017 Consumer Confidence Report, 2017

WORK PLANNING

- Establish data quality objectives
- Review of available information/data
- Identify data gaps/next steps to support evaluation of alternatives
- Hydrogeologic study approach

DATA QUALITY OBJECTIVES

- **What are DQOs?**
  - Guide decisions for collecting, analyzing, and evaluating data so that the overall project objective is achieved
- **Problem:** PFOS/PFOA were detected in municipal wells (1/4 and 9) at concentrations greater than the HA of 70 ppt; therefore, an EE/CA is needed to evaluate long-term alternatives for addressing PFOS/PFOA in drinking water.
- **DQO 1:** Characterize drinking water to support development and evaluation of wellhead treatment system alternatives in an EE/CA.
  - Available data for Wells 1/4 and 9 sufficient
    - PFAS data (16 compounds) for 1 sampling event (May 2017)
    - Primary and secondary EPA water quality criteria data (Airway Heights reported to WDOH)
    - Geochemical data
    - Alkalinity, corrosivity
    - Are total organic carbon (TOC) data available?
  - PFOS/PFOA influent values, competition from other contaminants, and other general water quality parameters will be considered in the evaluation of performance and operating costs
  - Seasonal variations in PFOS/PFOA concentrations are not anticipated and concentrations are not expected to substantially change (impacting accuracy of +50 percent to -30 percent considered suitable for comparative estimates)

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DATA QUALITY OBJECTIVES (CONT.)

- **DQO 2:** Identify an alternative drinking water source(s) to support evaluation of the following alternative in an EE/CA: design and installation of new alternate drinking water source(s) to replace Wells 1/4 and Well 9.
  - Determine volume of water the potential new supply well(s) need to provide
  - Complete a hydrogeologic study (fill data gaps)
  - If site-specific data is not available to fully evaluate a potential alternate drinking water supply, one or both of the following optional tasks may also be implemented:
    - Test Well Installation
    - Draw-down Testing

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HYDROGEOLOGIC STUDY APPROACH

- **Review Available Information**
  - All known aquifers located within a radius of 7 miles from Airway Heights
  - Local geology and hydrogeology
  - PFAS data for groundwater and drinking water wells within and near FAFB and Airway Heights
  - *Airway Heights well location study evaluating 3 alternate drinking water supply well locations by the Spokane River* - *Still need study*
  - Current status of municipal Wells 1, 4, and 9 (use/non-use of wells)
- **Initial Screening**
  - Evaluate aquifer conditions within a 7-mile radius of Airway Heights (study area)
  - Evaluate feasibility (water availability, pumping impacts, water quality, and other conditions such as infrastructure) and identify location(s) for a detailed evaluation

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HYDROGEOLOGIC STUDY APPROACH

- **Detailed Evaluation, including Groundwater Modeling:**
  - **Existing water rights in the area of influence -** Ability to Impact or impair senior water right or induce a drawdown greater than 10 feet of additional drawdown in adjacent supply wells (seasonally)
    - Inputs: laws and regulations of permissible withdrawal rates and groundwater modeling of withdrawal rates
  - **Ability to impact or impair established instream flows and closures as identified by the State of Washington**
    - Inputs: establishing parameters and setbacks and groundwater modeling of withdrawal rates
  - **Ability to produce an adequate quantity of drinking water**
    - Inputs: Required yield/capacity and groundwater modeling of withdrawal rates
  - **Availability for acquisition/transfer of water rights**
    - Inputs: existing water rights (downloadable water rights files available from the Ecology Water Rights Explorer website), meeting with Ecology to discuss water rights availability, constraints on potential transfers, mitigation requirements for transfers or other water rights changes that might be part of a future City water supply portfolio, and in stream flow constraints on water rights actions
- **Select Alternative Well Location(s)**

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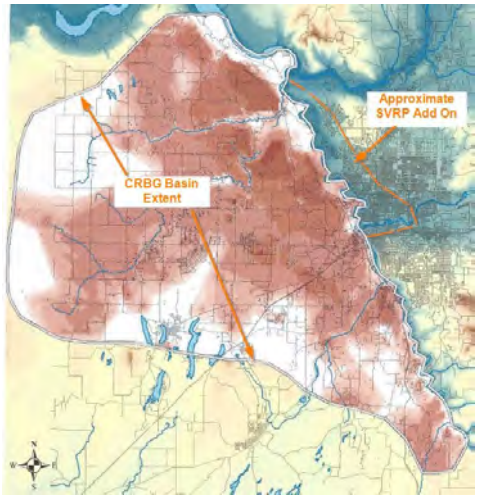
HYDROGEOLOGIC STUDY APPROACH

- **Groundwater Modeling**
  - 3-D groundwater model, using GROUNDWATER VISTAS and MODFLOW
  - Domain: CRBG basin and SVRP Trinity Trough
  - Construction: use mainly existing coverages and data based on reports and databases primarily available from the Spokane County water resources program and the local WRIA's and USGS



Grande Ronde Thickness

Source: Spokane County

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HYDROGEOLOGIC STUDY APPROACH

- **Groundwater Modeling (cont'd)**
  - Calibration: water level data, higher weight on key areas
  - Simulation Goals: Evaluate potential pumping impacts to other wells and surface water, assess groundwater flow from Airway Heights
  - Scenarios: Base Case, Pumping simulations at short listed potential well locations
  - Evaluation: Groundwater contours and flow direction, drawdown at key wells, change in fluxes at creeks and rivers

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Hydrogeologic Study Preliminary Results

- Review of Available Information
- Initial Screening

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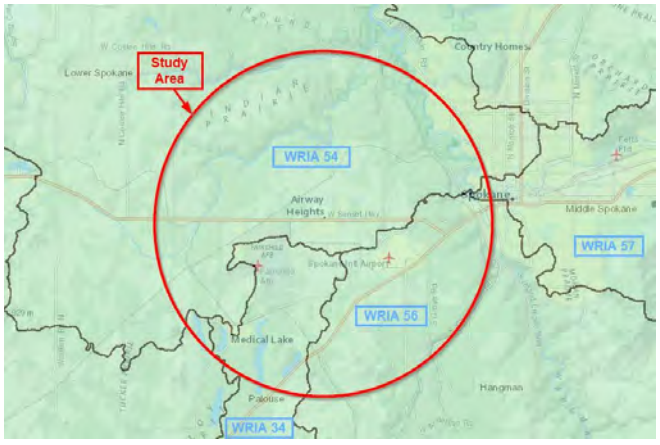
STUDY AREA



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DATA SOURCES

- **Key Data Sources to Date**
  - 2013 and 2015 West Plains studies
  - Spokane County-West Plains data/GIS coverages
  - USGS SVRP publications and model files
  - Columbia River Basalt Group (CRBG) studies
  - WRIA 54 and 56 websites
  - Department of Ecology publications
  - Several other research publications

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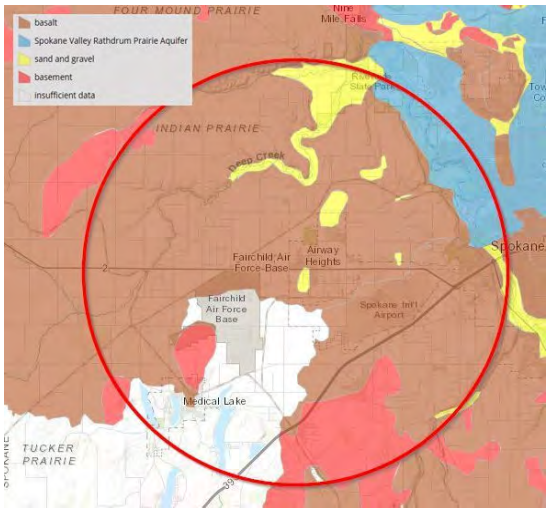
AQUIFERS WITHIN STUDY AREA

- **Key Aquifers**
  - Columbia River Basalt Group (CRBG)
  - Paleochannels
  - Spokane Valley Rathdrum Prairie (SVRP) Aquifer



Source: Spokane County website

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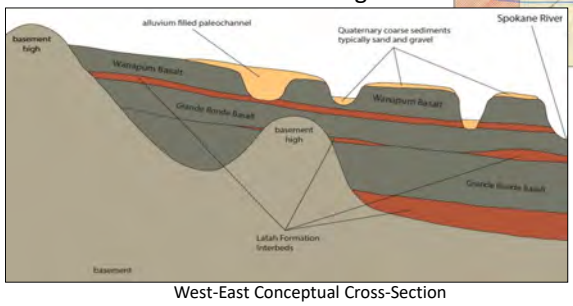
AQUIFERS WITHIN STUDY AREA-CRBG

- **CRBG-Unit & Setting**
  - Wanapum and upper and lower Grande Ronde main water bearing unit
  - Strata dips to the east
  - Basin isolated from rest of CRBG due to basement rock highs

Isolated CRBG Basin Outline

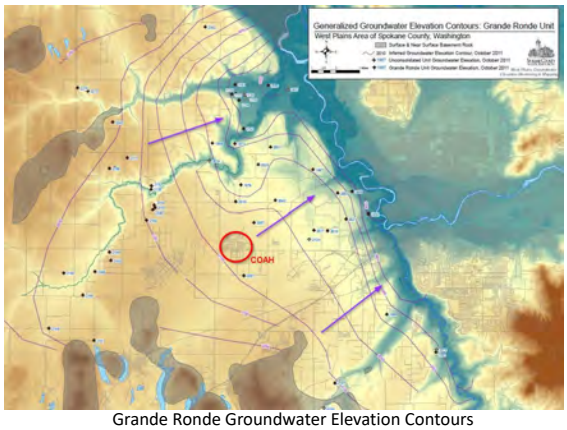


West-East Conceptual Cross-Section

Source: West Plains studies, 2013 and 2015

AQUIFERS WITHIN STUDY AREA-CRBG

- **CRBG-Groundwater Flow**
  - Flow in Grande Ronde generally to the northeast
  - Wanapum flow toward drainages
  - Groundwater flow occurs primarily in lateral interflow zones

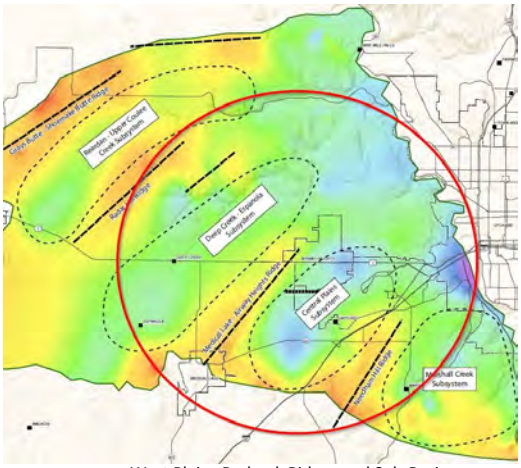


Grande Ronde Groundwater Elevation Contours

Source: 2013 West Plains Study

AQUIFERS WITHIN STUDY AREA-CRBG

- **CRBG-Subbasins**
  - Bedrock highs appear to create barriers to groundwater flow
  - Result is compartmentalized sub-basins that restrict hydraulic communication
  - Degree of restricted communication not fully understood



West Plains Bedrock Ridges and Sub-Basins

Source: 2015 West Plains Study

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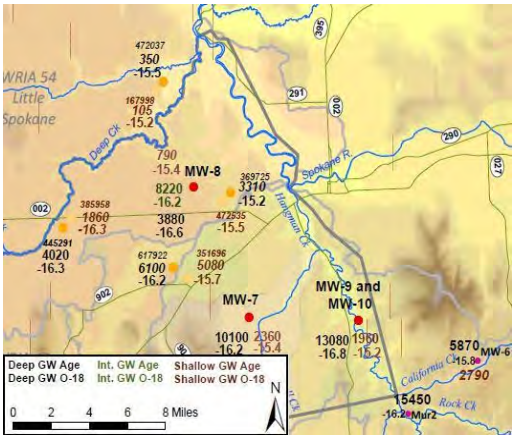
AQUIFERS WITHIN STUDY AREA-CRBG

- **CRBG-Groundwater Age**
  - Deep and Intermediate GW Ages range from 350 to >15,000 years
  - Shallow GW age range is 105 to about 2,000 years
  - Ages suggest a limited recharge that takes time to reach the CRBG aquifers



Source: 2014 West Plains Study

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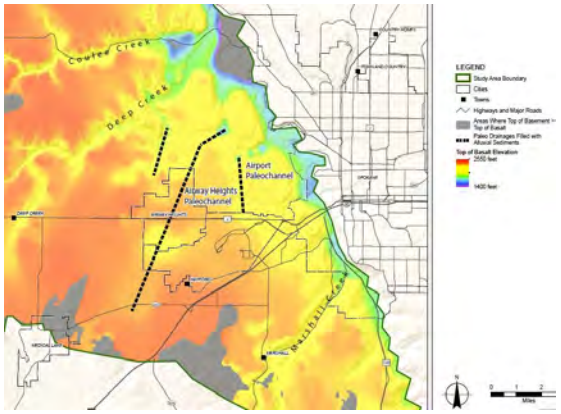
AQUIFERS WITHIN STUDY AREA-PALEOCHANNELS

- **Paleochannels**
  - Generally coarse-grained
  - Incised into Wanapum and in some places the Grande Ronde, then infilled
  - Hydraulically connected to basalts
  - Lateral extent appears limited
  - Can produce high yields that decrease over time



West Plains Paleochannels

Source: 2015 West Plains Study

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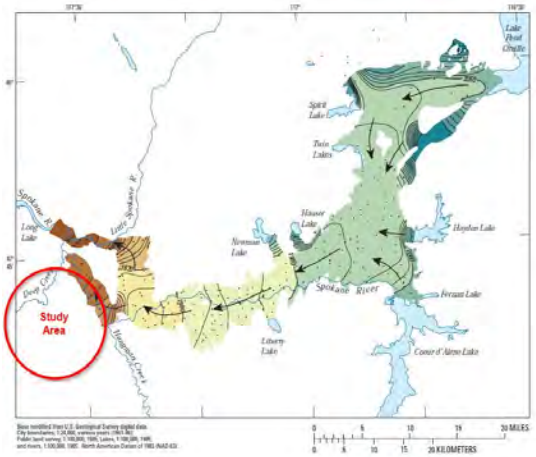
AQUIFERS WITHIN STUDY AREA-SVRP

- **SVRP**
  - Covers large area from Idaho to east edge of Study Area (Trinity Trough)
  - Generally coarse-grained with high yields
  - Interacts with Spokane River with various gaining and losing river reaches
  - Groundwater flow from east to west, northwest in Study Area



Source: 2007 SVRP Study

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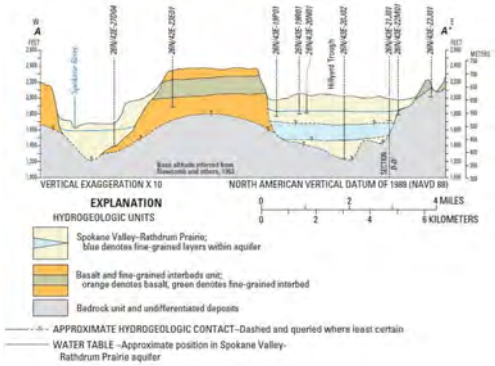
AQUIFERS WITHIN STUDY AREA-SVRP

- **SVRP-Trinity Trough**
  - Western split of groundwater flow, follows Spokane River
  - Receives groundwater flow from upgradient SVRP and tributary basins of the CRBG

SVRP Tributary Basins (pink)



Source: 2007 SVRP Study

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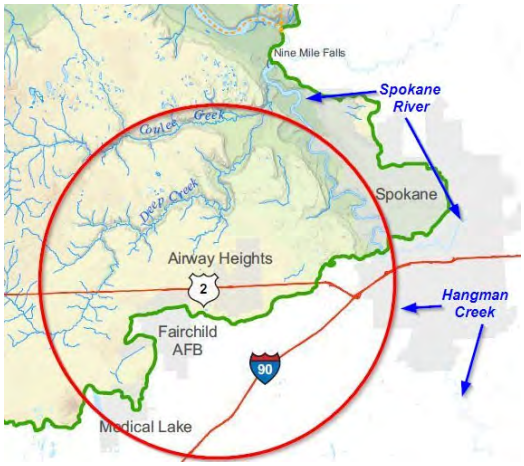
SURFACE WATER WITHIN STUDY AREA

- **Surface Water**
  - Key streams:
    - Spokane River
    - Deep Creek
    - Coulee Creek
    - Hangman Creek
  - Instream flows established for Spokane River
  - Others are subject to Ecology Surface Water Source Limitations (SWSL) that limit most water sources in the area



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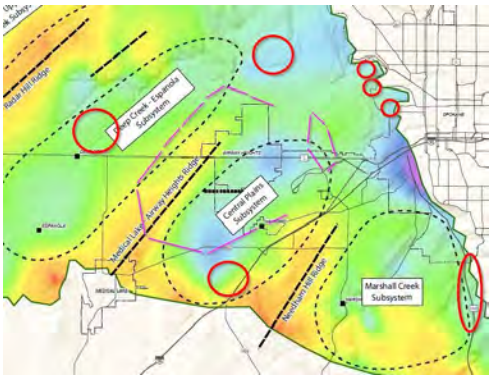
INITIAL SCREENING-LOCATIONS

- **Five locations within Study Area identified for initial screening:**
  - **East:** In the SVRP, downgradient of Airway Heights;
  - **North:** In the Deep Creek/Coulee Creek area, also downgradient of Airway Heights;
  - **West:** Upgradient of Airway Heights and FAFB, in the upper part of the Deep Creek drainage;
  - **South:** Within the southern influence of City's wells and also near wells for Four Lakes and Medical Lake; and
  - **Southeast:** In the Hangman Creek drainage.



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INITIAL SCREENING-RESULTS

Rank	Area	Aquifer	Physical Water Availability	Pumping Impacts	Water Quality	Legal Water Availability	Water Rights Options	Other Considerations	Retain?
1	East	SVRP	FAFB and other wells in area suggest high yields are probable.	Drawdown in adjacent wells likely not significant, and impairment unlikely. Would impact Spokane River flows.	Probable high quality water. PFOS/PFOA not expected.	Spokane River and SVRP instream flow rule water right established 2015 (Chapter 173-557 WAC). New unmitigated water rights in SVRP will be interruptible to instream flow rule; so a new unmitigated water right will not work for City. City could pursue a new mitigated water right or an existing senior SVRP right.	**Option A:** Purchase existing senior SVRP water right(s). **Option B**: Donate existing City rights to instream flow in Spokane River for new (possibly reduced) mitigated water right in SVRP. **Option C:** Consolidate City's water rights with City of Spokane and use their existing SVRP water rights and supply infrastructure. **Option D:** Short term solution: temporarily lease an existing senior SVRP water right with supply via City of Spokane intertie. Use this option until PFOS/PFOA treatment system in place or cleaned-up and can return to City's existing system. **Option E:** Change points of withdrawal of existing COAH water rights to new wells.	Land purchase for new wells may be difficult. Spokane Intertie infrastructure present	Yes
2	West	Basalt/Alluvium or Paleochannel	60-80 gpm (Basalt) and 100+gpm (paleochannel) possible. May be adequate.	Fewer wells so drawdown in adjacent wells may not be significant with proper placement. May reduce upper Deep Creek flows.	Probable high quality water. Upgradient of COAH and PFOS/PFOA unlikely.	Groundwater generally not available for new water rights (over-appropriation, Deep Creek SWSL)	**Option A:** Purchase existing senior water right(s). **Option B**: Use reclaimed water from City's WWTP to recharge aquifer.	No existing infrastructure but closer to COAH	Yes
3	North	Basalt/Alluvium	Similar yields to West expected, uncertain if paleochannel could be found. May be adequate.	Drawdown in adjacent wells could be significant. May reduce Deep Creek flows.	Likely high quality water. Presence of PFOS/PFOA uncertain.	Groundwater generally not available for new water rights (over-appropriation, Deep Creek SWSL)	**Option A:** Purchase existing senior water right(s). **Option B**: Use reclaimed water from City's WWTP to recharge aquifer.	No existing infrastructure	No
4	Southeast	Basalt/Alluvium	Similar yields to West expected. May be adequate,	Drawdown in adjacent wells could be significant. May reduce Hangman Creek flows.	Probable high quality water. PFOS/PFOA not expected.	Groundwater generally not available for new water rights (over-appropriation, Hangman Creek SWSL)	**Option A:** Purchase existing senior water right(s).	Considerable distance to get water to City	No
5	South	Basalt/Alluvium	Similar yields to West. May be adequate.	Park West well suggests pumping impacts could impact wells as far south as Four Lakes and Medical Lake	Likely high quality water. Presence of PFOS/PFOA uncertain.	Groundwater generally not available for new water rights (over-appropriation, known impacts to nearby wells)	**Option A:** Purchase existing senior water right(s). **Option B**: Use reclaimed water from City's WWTP to recharge aquifer.	No existing infrastructure	No

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INITIAL SCREENING-EAST RETAINED LOCATION

- **East (SVRP)-Primary Choice**
  - Overall best alternative
  - Greatest chance of high yield wells
  - Impacts to wells likely minimal, would impact Spokane River
  - Likely high quality water
  - Best options for water rights
  - Could potentially use existing infrastructure
  - Well(s) would be west of river
  - 3 locations previously identified
  - Proximal to FAFB wells

Source (Basemap): WA DOH Website, Group A and B wells with travel times

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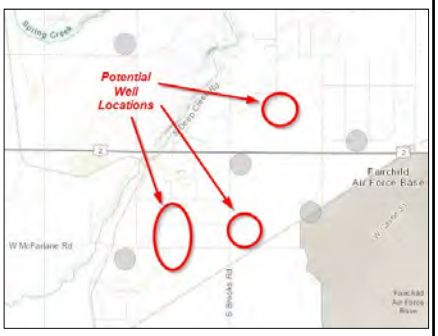
INITIAL SCREENING-WEST RETAINED LOCATION

- **West (CRBG/Paleochannel)-Secondary Choice**
  - Best alternative to primary choice
  - Water supply likely adequate, may need multiple wells
  - Fewer wells in area and placement could minimize impacts, would likely impact Deep Creek
  - Likely high quality water and no PFOS/PFOA (upgradient and separate sub-basin from COAH)
  - Options for water rights include purchase and/or reclaimed water infiltration
  - No existing infrastructure but close to COAH
  - Well(s) may be able to tap paleochannel
  - Location will need to be refined based on potential for land acquisition and existing wells



Source (Basemap): WA DOH Website, Group A and B wells with travel times

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NEXT STEPS

- **Work Planning/Partnering**
  - Additional status meeting for hydro study - following completion of detailed evaluation/modeling and prior to report submittal
  - EE/CA status meeting - following development and evaluation of alternatives and prior to report submittal
  - Is submittal of a Work Plan necessary?
- **Complete Initial Screening for Hydrogeologic Study**
  - Decision on volume of water the potential new supply well(s) need to provide
  - Review of Airway Heights well location study
- **Detailed Evaluation, including Groundwater Modeling**
  - Detailed review of information received from Spokane County, including existing well locations
  - Summary of existing water rights around retained locations
  - Consultation meeting With Ecology on Water Rights Strategies
  - Review of Potential Land Acquisition, Water Rights Purchase
  - Groundwater Model Development and Calibration
  - Model Simulations of Potential Pumping Impacts at Retained Locations. May Use Different Rates if Supplemental Water Options are Feasible
- **Select Alternative Well Location(s)**
- **Submit Hydrogeologic Report**
- **Submit EE/CA**

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ADDITIONAL DISCUSSION/ACTION ITEMS

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